Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte JOHN VALAINIS, ROBERT M. SUMNER
and JING CHEN

_____

Appeal No. 1999-0576
Application 08/576,634

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ON BRIEF

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Before JERRY SMITH, GROSS and BLANKENSHIP, Administrative Patent Judges.

SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-20, which constitute all the claims in the application.

The disclosed invention pertains to a method for use in a programmed computer for determining the placement of components on a placement surface such as a printed circuit

board based on thermal design constraints including the thermal effect one component has on another component.

Representative claim 1 is reproduced as follows:

1. A method for thermal driven placement in a programmed computer system, the method comprising:

separately computing thermal response function data for each component in a group of components for a plurality of locations on a placement surface; and

placing the group of components on the placement surface in a first placement;

computing a thermal contribution from a second component on a first component by finding a temperature value from the thermal response function data of the second component corresponding to a location of the first component;

summing the temperature value from the thermal response function data of the second component with a temperature value of the first component to compute a calculated junction temperature of the first component; and

comparing the calculated junction temperature with a predefined junction temperature to analyze whether the first placement satisfies a predefined thermal design constraint.

The examiner relies on the following references:

DiGiacomo et al. (DiGiacomo)	4,630,219	Dec. 16, 1986
Phillips et al. (Phillips)	4,894,709	Jan. 16, 1990

G. Casselman et al. (Casselman), “A Thermal Model for Hybrid Circuits,” Hybrid Circuits, No. 10, May 1986, pages 9-13.

Claims 1-20 stand rejected under 35 U.S.C. § 103. As evidence of obviousness the examiner offers DiGiacomo in view of Phillips with respect to claims 1, 2, 4-13 and 16-20, and the examiner adds Casselman with respect to claims 3, 14 and 15.

Rather than repeat the arguments of appellants or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 1-20. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner

is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellants have been considered in this decision. Arguments which

appellants could have made but chose not to make in the brief have not been considered [see 37 CFR § 1.192(a)].

With respect to independent claims 1, 9 and 13, the examiner cites DiGiacomo as teaching a method for placing elements on a placement surface. The examiner acknowledges that DiGiacomo has no teachings related to the temperature and the thermal events as set forth in the claims. The examiner cites Phillips as teaching the thermal driven placement of components. The examiner points to various portions of Phillips and DiGiacomo as teaching the various steps of the claims on appeal. The examiner finds that it would have been obvious to the artisan to modify the teachings of DiGiacomo with the teachings of Phillips [answer, pages 3-5].

Appellants argue in great detail why the claims on appeal are not obvious over the teachings of the applied prior art [brief, pages 10-25]. The examiner fails to answer most of the points raised by appellants in the brief, and the examiner simply refers to the same passages of the prior art which were referred to in the rejection [answer, pages 10-11]. Appellants respond by highlighting arguments that the examiner failed to address, and by reemphasizing why the appealed claims are not obvious in view of the applied prior art [reply brief].

We essentially agree with all the positions set forth by appellants in the briefs. The examiner has failed to establish a prima facie case of obviousness. The portions of the

applied prior art cited by the examiner do not support the factual findings made by the examiner. Specifically, there is nothing in Phillips identified by the examiner or found by us which teaches or suggests the computation of thermal effects that each component of a plurality of components has on every other component for a plurality of different locations. The record before us simply does not support the findings made by the examiner. Therefore, we do not sustain the examiner's rejection of independent claims 1, 9 and 13 or of any of the claims which depend therefrom.

In summary, we do not sustain the examiner's rejection of the appealed claims. Therefore, the decision of the examiner rejecting claims 1-20 is reversed.

REVERSED

JERRY SMITH Administrative Patent Judge	)	
ANITA PELLMAN GROSS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
HOWARD B. BLANKENSHIP Administrative Patent Judge	)	

JS:yrt

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